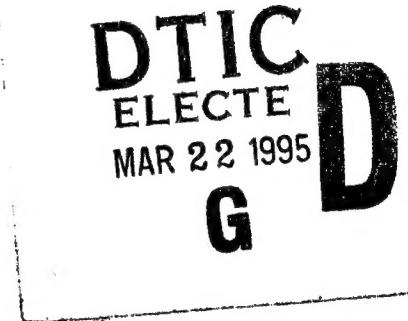Logistics Management Institute

Accrual Accounting of Military Retirement Health Care: FY95 Estimates

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Melvin R. Etheridge

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LOGISTICS MANAGEMENT INSTITUTE

Accrual Accounting of Military Retirement Health Care: FY95 Estimates

Executive Summary

The Department of Defense provides health care for military retirees, their dependents, and their survivors, as a retirement benefit. That care is delivered directly at military medical treatment facilities (MTFs) and through reimbursement by the Civilian Health and Medical Program of the Uniformed Services for care from civilian providers.

In 1990, the DoD Comptroller asked the Logistics Management Institute to develop a plan for shifting the military retirement health care benefit to an accrual accounting basis. Under accrual accounting, the liability for future benefits is recognized when the obligation for those benefits is incurred, i.e., during the period of employment. This is in contrast to treating the benefits as a current operating expense when the benefits are delivered, i.e., during retirement.

Accrual accounting for retirement benefits is common. Accrual accounting of retirement health care benefits is now required by the Financial Accounting Standards Board of corporations in the private sector. In 1985, DoD shifted financing of the military retirement pay benefit to an accrual basis. LMI's research continued through 1992 and provided increasingly accurate military retirement health care accrual accounting estimates for FY92, FY93, and FY94.[1]

In 1993, the DoD Office of the Actuary asked LMI to calculate military retirement health care accrual accounting figures for FY95 and to familiarize Office of the Actuary personnel with the military retirement health care accrual accounting processes. This report documents that task. We were assisted in our efforts by the actuarial consulting firm of Milliman & Robertson, Inc., which performed the actuarial calculations.

FY95 ACCRUAL ACCOUNTING FIGURES

Two accrual accounting figures, the normal cost and the unfunded accrued liability (UAL), are needed for military retirement health care. The normal cost is

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[1] These efforts were documented in the following LMI reports: CO101TR1, *Accrual Funding of Military Retirement Health Care, Phase I Report,* Melvin R. Etheridge, Jr., Edward Simms, Jr., and Irv Greenberg, March 1991; CO101R1, *Accrual Funding of Military Retirement Health Care,* Melvin R. Etheridge, Jr., Edward Simms, Jr., and Irv Greenberg, January 1992; and CO101RD1, *Accrual Funding of Military Retirement Health Care: FY94 Funding Estimates,* Melvin R. Etheridge, January 1993.

an estimate of the obligation incurred by DoD for the retirement health care benefits earned by service members during FY95. It is calculated by multiplying a normal cost percentage NCP by the DoD base payroll.[2] This allows the normal cost to be easily recalculated as planned force levels (and thus payrolls) change. We estimate the total FY95 normal cost at $4.92 billion. This averages to $2,398 per Active Component service member and $419 per Reserve Component service member. We call attention to the fact that this is the future retirement health care cost for those who retire spread over *all* current service members. These estimates are based on the figures contained in the table below.

FY95 Normal Cost Components

Component	Normal cost percentage	Base payroll ($M)	Normal cost ($M)	Number of service members	Average cost per service member ($)
Active	11.1	40,423	4,480	1,868,241	2,398
Reserve	10.8	4,047	436	1,040,885	419
Both	11.1	44,470	4,916	2,909,126	1,690

The UAL is an estimate of DoD's future liability to current retirees and service members for benefits earned with military service before 1 October 1994. It is an expression of a liability already incurred by the U.S. Government: benefits earned by current retirees and service members before the start of accrual accounting less those benefits already given to current retirees. We estimate the FY95 UAL to be $188.51 billion.

COMPARISON WITH FY94 ESTIMATES

Our FY95 estimates are lower than those for FY94. For FY95, the normal cost decreased $1.33 billion and the UAL decreased $24.81 billion. These changes are primarily due to two factors:

◆ Decrease in the assumed medical cost growth rates based on recent experience

◆ Availability of much more detailed MTF inpatient workload data.

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[2]The base payroll is the sum of the "base" pay of all service members. Base pay is that component of military pay before the addition of special pays, bonuses, and allowances.

SUMMARY

Accrual accounting of military retirement health care recognizes an existing obligation to military service members. It makes the actual cost of military labor more visible to managers evaluating manpower policy alternatives, contributing to better decision-making.

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Accrual Accounting of Military Retirement Health Care: FY95 Estimates

BACKGROUND

The Department of Defense provides health care for military retirees, their dependents, and their survivors, as a retirement benefit.[1] That care is delivered directly at military medical treatment facilities (MTFs) and through reimbursement by the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) for care from civilian providers. Active Component retirees are entitled to medical benefits upon retirement; Reserve Component retirees are entitled to benefits at age 60. Eligibility for use of MTFs continues for life, while eligibility for CHAMPUS ends when the individual beneficiary (retiree, dependent, or survivor) becomes eligible for Medicare.

In 1985, DoD stopped financing military retirement pay as a current operating expense and began financing it on an accrual basis. Under accrual accounting, the liability for future employee benefits is recognized when the obligation for such benefits is incurred, i.e., during the period of employment. This is in contrast to recognizing the benefit as a current operating expense when the benefit is delivered, i.e., during retirement. Accrual accounting more accurately reflects the true cost of labor by showing the cost of benefits as they are earned during military service.

In 1990, the DoD Comptroller asked the Logistics Management Institute (LMI) to develop a plan for shifting the military retirement health care benefit to an accrual accounting basis. LMI developed accrual accounting figures for FY93 and published them in LMI Report CO101R1, *Accrual Funding of Military Retirement Health Care*. That document contains detailed discussions of the military retirement health care benefit, accrual funding (accounting), and management options. LMI provided updated figures for FY94 in LMI Report CO101RD1, *Accrual Funding of Military Retirement Health Care: FY94 Funding Estimates*.

In 1993, the DoD Office of the Actuary asked LMI to calculate figures for FY95 and to familiarize Office of the Actuary personnel with military retirement health care accrual accounting processes. The actuarial consulting firm of Milliman & Robertson, Inc., which has wide experience in this field, assisted us in our efforts. This report provides the FY95 figures, documents the data collection and

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[1] In this document, the term "retired dependents" includes dependents and survivors of military retirees. Additionally, "retired health care" is medical, dental, and other health care delivered to retired military service members, their dependents, and survivors.

processing effort (Appendix A), and provides the actuarial calculations (Appendix B).

FY95 ACCRUAL ACCOUNTING FIGURES

We calculated two FY95 accrual accounting figures for military retirement health care. The first is the estimate of the normal cost. This is an estimate of the obligation incurred by DoD for the retirement health care benefits *earned during FY95* by military service members. The second accrual accounting figure is the unfunded accrued liability (UAL). This represents DoD's future liability to current retirees and service members for benefits earned with military service *before 1 October 1994*.

FY95 Normal Cost

The normal cost is calculated by multiplying a normal cost percentage (NCP) times the DoD base payroll.[2] Using an NCP allows the normal cost to be recalculated easily as planned force levels change during the programming and budgeting process.

Because of differences in retirement rates, benefit structure, and benefit utilization, we calculated eight separate NCPs broken down by Component (Active/Reserve), pay grade (Officer/Enlisted), and benefit (MTF/CHAMPUS). We then multiplied these NCPs by the appropriate base payroll to determine the normal costs shown in Table 1. These normal costs will change with changes in DoD's base payroll. Therefore, the NCPs should be applied to the latest base payroll in computing updated normal costs.

We estimate the total FY95 normal cost to be $4.92 billion. This averages to $2,398 per Active Component service member and $419 per Reserve Component service member. These averages are the costs of future retirement health care benefits for those current service members who will retire spread across *all* current service members.

FY95 Unfunded Accrued Liability

The FY95 UAL is the present value, on 1 October 1994, of all future retirement health care benefits for both current retirees and current military personnel earned with their service before that date. The UAL expresses an obligation already incurred by the U.S. Government: total benefits earned before the start of accrual accounting less those benefits already paid.

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[2] The base payroll is the sum of the "base" pay of all service members. Base pay is that component of military pay before the addition of special pays, bonuses, and allowances.

Table 1.
FY95 Normal Costs and Normal Cost Percentages

Component	Pay grade	Benefit	Normal cost percentage	Normal cost ($M)	Average cost per service member ($)
Active	Officer[a]	MTF	4.93	592	2,066
		CHAMPUS	3.70	444	1,551
		Total officer	8.63	1,036	3,617
	Enlisted[b]	MTF	7.38	2,097	1,326
		CHAMPUS	4.63	1,317	832
		Total enlisted	12.01	3,414	2,158
	Total Active		11.08	4,480	2,398
Reserve	Officer[c]	MTF	7.37	56	352
		CHAMPUS	3.04	23	145
		Total officer	10.40	79	497
	Enlisted[d]	MTF	7.71	253	287
		CHAMPUS	3.19	105	119
		Total enlisted	10.90	358	406
	Total Reserve		10.77	436	419

Note: Entries may not sum due to rounding.

[a] Based on expected FY95 Active Officer payroll of $12,002M and personnel count of 286,395.

[b] Based on expected FY95 Active Enlisted payroll of $28,421M and personnel count of 1,581,846.

[c] Based on expected FY95 Reserve Officer payroll of $762M and personnel count of 159,564.

[d] Based on expected FY95 Reserve Enlisted payroll of $3,285M and personnel count of 881,321.

Because of differences in benefits and utilization we calculated 12 components of the total UAL. We broke these down by sponsor status (current service member, Active Component; current service member, Reserve Component; and current retired), pay grade (Officer/Enlisted), benefit (MTF/CHAMPUS). Data do not permit us to break down the current retired category between the Active and Reserve Components. We estimate the FY95 UAL at $188.51 billion. Table 2 displays the component FY95 UALs.

Table 2.
FY95 Unfunded Accrued Liabilities

Sponsor status	Pay grade	Benefit	UAL ($M)
Current Active Component	Officer	MTF	6,047
		CHAMPUS	4,367
		Total active officer	10,414
	Enlisted	MTF	29,676
		CHAMPUS	17,891
		Total active enlisted	47,567
	Total active		57,981
Current Reserve Component	Officer	MTF	648
		CHAMPUS	199
		Total reserve officer	847
	Enlisted	MTF	1,025
		CHAMPUS	329
		Total reserve enlisted	1,354
	Total reserve		2,201
Current retired	Officer	MTF	22,506
		CHAMPUS	8,060
		Total retired officer	30,566
	Enlisted	MTF	69,993
		CHAMPUS	27,771
		Total retired enlisted	97,764
	Total retired		128,330
Total all categories			188,512

RECONCILIATION WITH FY94 ESTIMATES

Table 3 compares our estimates of the FY95 normal cost, average cost per service member, and UAL with those we made in 1992 for FY94.

Table 3.
Comparison of FY94 and FY95 Accrual Accounting Estimates

Estimate	Component	Pay grade	FY94	FY95
Normal cost	Active	Officer	$1,177M	$1,036M
		Enlisted	$3,877M	$3,414M
	Reserve	Officer	$282M	$79M
		Enlisted	876M	$358M
Average cost per service member	Active	Both	$2,841	$2,398
	Reserve	Both	$1,279	$419
Unfunded accrued liability	Active	Both	$69.86B	$57.98B
	Reserve	Both	$6.08B	$2.20B
	Retired	Both	$137.39B	$128.33B

In addition to the routine changes that occur from year to year (such as the effects of another year of medical cost growth), the differences between the FY94 and FY95 estimates had two primary causes:

♦   Better data

♦   Decrease in the assumed medical cost growth rates based on recent experience.

Better Data

We continue to improve and refine our input data. This year, this improvement took place in two major areas. For the first time, we were able to get patient-level MTF inpatient workload data and to split our CHAMPUS and MTF inpatient costs by pay grade (Officer/Enlisted). As a result, normal cost decreased by $1.4 billion and UAL decreased by $19.2 billion.

MTF INPATIENT WORKLOAD DATA

The availability of patient-level MTF inpatient workload data was a major breakthrough in our accrual accounting calculations. We easily converted these workloads to patient-level costs. Until this year, only total expenditure (outlay) data were available and we were thus forced to assume that military retirees exhibited the same cost profiles with age as the general U.S. insured population.

Inspection of this year's data showed that this was a false assumption. The data showed that military retirees spend a greater portion of their total retirement health care benefit in their early retirement years and less in their later retirement years than we had assumed. This change had a significant effect on the UAL result for current retirees.

Another assumption proven false by these data was the utilization of MTF care by retired Reservists. For FY94 we assumed that MTFs accounted for approximately 25 percent of Reserve Component retirees' health care costs. This year's data revealed that the level was closer to 3 percent. This is the major element in the decrease in Reserve Component estimates.

DIFFERENTIATING BETWEEN OFFICER AND ENLISTED BENEFIT COSTS

In the past, we incorrectly assumed that the benefit costs of individual retirees did not vary with pay grade. This year's data revealed that there is a difference in costs between officer and enlisted retirees. As a result, there is a difference in the amount of change for the two groups between FY94's estimates and those for FY95.

The data showed a difference in cost patterns for the two groups of retirees for CHAMPUS and MTF care. CHAMPUS claims costs were higher for officer retirees and lower for enlisted retirees than previously assumed. MTF workload data showed the reverse, being higher for enlisted retirees and lower for officer retirees.

Decreasing Medical Cost Growth Rates

The actuarial consulting firm of Milliman & Robertson, Inc., which has wide experience in this field, carried out the actuarial calculations for this task. These calculations use an assumed trend in the growth of medical costs over time. Milliman & Robertson, in consultation with LMI, developed this trend based on experience in the civilian sector and the recent cost growth pattern in MTF and CHAMPUS costs.

For FY94, we assumed that CHAMPUS costs would initially increase at 12 percent annually and MTF costs would grow at a 9 percent annual rate with both rates decreasing at a constant rate over 20 years, stabilizing at 6 percent. Over the past year, medical cost growth in the civilian sector has slowed and the military medical sector continued to show moderate growth. Because of this, for FY95 we reduced the starting points to 10 percent for CHAMPUS and 8 percent for MTF costs. Again, both rates decline at a constant rate and stabilize at 6 percent in 20 years.

The reduction in the MTF growth rate was less than the reduction in the CHAMPUS growth rate. The difference in the reductions was because recent

MTF cost growth was already less than that in the civilian health care sector, to which we feel CHAMPUS costs are more closely tied.

The change in the medical cost growth trend assumption resulted in a decrease of $0.8 billion in the normal cost and $24.0 billion in the UAL.

RECOMMENDATIONS

We recommend further effort be made in three areas:

◆ Improve MTF data

◆ Improve data processing

◆ Implement accrual accounting.

Improve MTF Data

The availability of patient-level MTF inpatient workload data significantly improved our estimates for FY95. The MTF outpatient data, however, are available only as summary totals;. that is, we can determine only total outlays on MTF outpatient health care for retirees, their dependents, and their survivors. Since outpatient care accounts for approximately 58 percent of MTF retired health care costs, the demographic distributions of a significant portion of our cost data are unknown.

The MTF inpatient data varied significantly from the general U.S. insured population cost profiles. Therefore, we cannot apply general U.S. insured population profiles for our outpatient data with confidence. Likewise, we cannot apply the MTF inpatient cost profiles to outpatient costs, since outpatient care might not be as price sensitive as hospital stays. That is, people might be willing to put up with the out-of-pocket costs of a visit to a civilian doctor to avoid traveling long distances to a military hospital. While this hypothesis may or may not be true, it introduces an element of doubt when applying MTF inpatient cost profiles to outpatient summary data.

DESIRED RESULTS

Ideally, we should develop MTF outpatient cost vectors by age, gender, relationship to sponsor, sponsor component, and sponsor pay grade. Such vectors would be comparable to those developed for CHAMPUS claims and MTF inpatient costs. Thus far, we have not been able to locate regularly reported data that _would allow us to develop such profiles. The difficulty lies in the lack of patient-level data.

Current outpatient workload data are based on outpatient visits weighted by clinical area, since different clinical areas have different average costs per visit. Only the Navy publishes summary outpatient workloads broken out jointly by both patient relationship to sponsor (beneficiary category) and clinical area.[3] The other Services break out their summary data by beneficiary category and by clinical area, but not by the cross-product. To overcome this, the Navy beneficiary category distributions are applied to Army and Air Force clinical area data.

POTENTIAL SOLUTIONS

Ideally, MTF outpatient workload data would be available at the patient level as they already are for inpatient workloads. If such data are not available, then the currently available summary level data need improvement.

Patient-Level Data

Imposing a data collection requirement on MTFs for outpatient workloads solely for the purposes of accrual accounting is impractical from a cost stand point. Prototype management information system improvements at the MTF-level may be able to provide these data. If so and the data are available but not reported, the DoD Office of the Actuary may be able to task MTFs to provide the data through Assistant Secretary of Defense (Health Affairs). It is probably beyond the capabilities of the DoD Office of the Actuary to collect the data directly from individual MTFs.

If the patient-level data are not available from all MTFs, the DoD Office of the Actuary could collect data from a subset of MTFs. This would provide insight into the overall patterns of retired outpatient health care benefit utilization. The data could be cross-referenced with eligible beneficiary population data, since beneficiary zip codes are available to give an indication of usage rates by beneficiary group. To avoid biasing the sample, MTFs from which to collect data would have to be selected carefully.

Summary-Level Data

The currently available summary-level data from the Medical Expense Performance Reporting System and Biometrics data bases alone are only marginally adequate for accrual accounting. If patient-level outpatient data are not available from MTFs, these summary-level data should be augmented with additional data.

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[3] Another problem is that there are only three beneficiary categories: Active Duty, Active Duty Dependents, and Other. Thus retirees, retired dependents, survivors, and all other categories of patients are combined into the Other category.

One option is to use existing one-time studies of usage patterns of MTF outpatient care by beneficiary groups. We did learn of a one-time Army survey of several MTFs dating from the mid-1980s. By applying the usage patterns from this survey to an analysis of the summary-level data for each MTF, cross-referenced to the exposed population for that MTF, some we might gain some insight into utilization by the different groups now aggregated into the "Other" beneficiary category.

We recommend that the DoD Office of the Actuary determine the actual level of outpatient data collected at the MTFs. This survey should identify data elements collected and the storage method used (central mainframe, desktop computer, paper, etc.), as well as expected near-term improvements. On the basis of the results of such an inquiry, a plan for continuing data collection and processing can be developed and implemented.

Improve Data Processing

The MTF inpatient data received for the FY95 calculations is an extract of the Biometrics data base in Ft. Detrick, Md. We could not tie this data base to the beneficiary demographic data received from the Defense Manpower Data Center (DMDC). As a result, we were forced to use the demographic information in the MTF inpatient data base to generate our usage patterns. Apart from any potential inconsistencies with the DMDC data, which we used for our other calculations, the MTF inpatient data base demographics were not as detailed as those in the DMDC data base. Specifically, the Biometrics data base does not differentiate between children, spouses, parents, and other dependents, lumping all groups into one category.

By adding a *dependent number* field to both the MTF inpatient data base and the DMDC beneficiary data base, the MTF inpatient workload data can be coupled with the better dependent demographic data used in other areas of our calculations. This would require generation of new DMDC and MTF inpatient data bases for FY91 – FY92 (inpatient data at this level do not exist before FY91) and revision of the data processing software for the two sets of data bases. We strongly recommend that the DoD Office of the Actuary take this action for the FY96 accrual accounting calculations.

Implement Accrual Accounting

Accrual accounting for pension benefits is a standard in all sectors of the American economy. The Financial Accounting Standards Board now requires accrual accounting of corporate retirement health care benefits. Vice President Gore's National Performance Review has recommended studying accrual accounting for Federal civilian retirement health care benefits. Since 1985, the

military retirement pay system has had an accrual trust fund with deposits made during future retirees' military service. Apparently, shifting military retirement health care benefits to a similar trust fund is a reasonable probability.

We recommend that DoD begin planning now to implement an accrual trust fund for military retirement health care benefits. Several areas need planning and decisions. An important first step is to decide how a trust fund would operate. While much attention has been given over the past 3 years to determining trust fund deposits, little planning has been given to how funds would be withdrawn and used to fund military retirement health care.

In another area, DoD must decide whether to fund retirement health care on a capitation or a workload basis. If a capitation approach is selected, funds would be disbursed to MTFs based on the population in their catchment area who could potentially demand care. With the workload approach, funds would be disbursed on the basis of the amount of care actually delivered.

Existing data support a capitation scheme. If utilization rates by different beneficiary categories are the same across all MTFs, this approach would be preferable. On the other hand, if utilization rates vary from MTF to MTF, a capitation approach would underfund those MTFs with higher than average retired utilization rates and overfund those with lower than average rates.

SUMMARY

The Logistics Management Institute calculated FY95 accrual accounting figures for military retirement health care benefits using improved MTF inpatient data. The actuarial consulting firm of Milliman & Robertson, Inc., made the actuarial calculations. We estimated that the total obligation of DoD to its current service members for future retirement health care earned with service in FY95, that is, the normal cost, will be $4.92 billion. The FY95 unfunded accrued liability, the obligation to current service members and retirees for benefits earned with service before 1 October 1994, will be $188.51 billion.

Both figures are lower than our FY94 estimates, primarily because MTF inpatient data improved significantly and the assumed medical cost growth profile was reduced based on recent experience.

We recommend that additional efforts be made to improve MTF outpatient data, improve data processing, and plan for the implementation of an accrual trust fund for military retirement health care. Specifically, we recommend the following:

◆ The DoD Office of the Actuary should identify the outpatient workload data available at the MTF level.

- The DoD Office of the Actuary should improve data processing so that future accrual accounting calculations will tie the MTF inpatient workloads to the DMDC beneficiary demographic data base.

- The DoD should begin planning for operating an accrual trust fund for military retirement health care benefits in anticipation of implementation of such a fund.

APPENDIX A

Data Collection and Processing

The objective of the data collection and processing effort is to provide data to the actuary making the accrual accounting calculations so that he/she can estimate the present value of the future benefits. A primary element of the accrual accounting calculations is the normal cost percentage (NCP). The NCP is the ratio of the present value of future (retirement health care) benefits of the group (military service members) to the present value of their future pay. The present value of future pay is the same as that used by the DoD Office of the Actuary to calculate the NCP for the military retirement pay benefit and will not be discussed further.

We estimated the present value of future benefits using recent experience data for military retirement health care from the Military Health Services System (MHSS), which is made up of military medical treatment facilities (MTFs) and the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS).

The Logistics Management Institute collects and processes two types of experience data. The first is data on the exposed population, which is all the people eligible for retirement medical care: current retirees, dependents of current retirees, and survivors of retirees. The second is data on claims, including direct and administrative costs of care.

Within the civilian health insurance industry, exposed population and claims data are available for each individual episode of care. As a result, accurate vectors of population counts (numbers of people) and claims costs can be constructed for each set of factors that influence health care costs, from which future health care costs can be predicted.

In the case of military retirement health care, accurate exposed population data are contained in the Defense Enrollment Eligibility Reporting System (DEERS), which is available from the Defense Manpower Data Center (DMDC), Monterey, CA. DMDC also provides individual claims data for most of CHAMPUS.[1]

Unlike health care providers in the civilian sector, MTFs do not track costs by individual patients and episodes of care. Instead, they track total expenditures, or outlays, by numbered program element (PE) within the Future Years Defense Program (FYDP). That is, each area of the MHSS operation is assigned a

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[1] The major exception to this is California and Hawaii, where a single contractor has set up a health maintenance organization-like operation for CHAMPUS under the CHAMPUS Reform Initiative (CRI). Unlike the rest of the CHAMPUS program, the CRI contractor is not required to report individual claims.

PE. Examples of these include Station Hospitals and Clinics (PE 0807792) and Care in Non-Defense Facilities (PE 0807713). Within each PE, spending is tracked by appropriation category, such as Military Personnel (MilPers) or Operations and Maintenance (O&M).

Military medical treatment facilities also track workload data. The unit for inpatient workloads is the inpatient relative weighted product (IRWP) and is based on length of stay and diagnosis. The outpatient workload unit is the ambulatory work unit (AWU), based on patient visits by clinical area. The workload units are assumed to be equal in cost within the categories of inpatient and outpatient care.

Military medical treatment facilities have generated inpatient data for each episode of care since 1991. Since these data include the sponsor's Social Security Number (SSN) as well as IRWPs, claims vectors can be constructed. The details of this process will be described later in this appendix.

The ambulatory treatment data reported by MTFs allow only calculation of summary level AWU totals. MTFs report these data for three categories of patients: Active Duty military personnel, dependents of Active Duty military personnel, and "others". The latter category includes those patients eligible for military retirement health care as well as a variety of other patients, such as officers of the Uniformed Public Health Service and foreign military personnel on duty in the United States.

The following sections describe how exposed population and claims data are collected and processed into formats usable by accrual accounting actuaries.

DATA COLLECTION

The Logistics Management Institute collects data from three primary sources: DMDC, the Office of the Assistant Secretary of Defense (Health Affairs) [OASD(HA)], and the Office of the Civilian Health and Medical Program of the Uniformed Services (OCHAMPUS).

Defense Manpower Data Center

The Defense Manpower Data Center provides exposed population data from DEERS and CHAMPUS claims data. These data are furnished in three data bases: sponsor, beneficiary, and CHAMPUS.

SPONSOR DATA BASE

Sponsors are military personnel; they may be current service members or retirees, living or deceased. The sponsor data base contains data for all U.S.

military sponsors for whom at least one beneficiary of military health care exists. The data elements of the sponsor data base are shown in Table A-1.

Table A-1.
Data Elements of the Sponsor Data Base

Field name	Field contents	Possible entries	Data type	Field width
SSN	Sponsor SSN		Character	9
CC	Sponsor birth century	18, 19	Character	2
YY	Sponsor birth year	00 – 99	Character	2
MM	Sponsor birth month	01 – 12	Character	2
DD	Sponsor birth day	01 – 31	Character	2
STATUS	Sponsor status	A, R, D, O[a]	Character	1
SERVICE	Sponsor service	A, N, F, M, O[b]	Character	1
PAYGRADE	Sponsor paygrade	E, O, U[c]	Character	1
COMP	Sponsor component	A, R, O, U[d]	Character	1
Total record length				21

[a] A = Active Duty, R = retired, D = deceased, and O = other.

[b] A = Army, N = Navy, F = Air Force, M = Marine Corps, and O = other .

[c] E = enlisted, O = officer, and U = unknown.

[d] A = Active Component retired, R = Reserve Component retired, O = other, and U = not retired.

BENEFICIARY DATA BASE

The beneficiary data base contains data for every beneficiary of U.S. military medical care whose sponsor is in the sponsor data base (including living sponsors). The data elements of the beneficiary data base are shown in Table A-2.

CHAMPUS DATA BASE

The CHAMPUS data base is similar to the Beneficiary data base but has no *name* or *century* fields. Unlike the beneficiary data base, the CHAMPUS data base has a *cost* field containing the total CHAMPUS incurred claims, in dollars and cents (no decimal) for the claimant (beneficiary) during the fiscal year.[2] The data elements of the CHAMPUS data base are shown in Table A-3.

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[2] Incurred claims are those claims for health care provided during the period in question. This contrasts to *paid claims,* which are those paid during the period in question. There is a lag between the two during which claims are submitted for payment.

We use incurred claims for our calculations, because they give more consistent results. However, there is a window for up to 24 months following the date of treatment to submit a claim. Therefore, the claims data from the most recent fiscal year used in our

Table A-2.
Data Elements of the Beneficiary Data Base

Field name	Field contents	Possible entries	Data tpe	Field width
SSN	Sponsor SSN		Character	9
NAME	First six characters of first name		Character	6
SEX	Beneficiary sex	M, F, Z[a]	Character	1
RELATION	Relationship to sponsor	1, 2, 3, 4, 5[b]	Character	1
CC	Beneficiary birth century	18, 19	Character	2
YY	Beneficiary birth year	00 – 99	Character	2
MM	Beneficiary birth month	01 – 12	Character	2
DD	Beneficiary birth day	01 – 31	Character	2
CHAMPUS	Eligible for CHAMPUS	Y, N, O[c]	Character	1
MEDICARE	Eligible for Medicare	Y, N, O[c]	Character	1
Total record length				27

[a] M = male, F = female, and Z = unknown.

[b] 1 = self, 2 = spouse, 3 = child, 4 = parent, and 5 = other.

[c] Y = yes, N = no, and O = unknown.

Office of the Assistant Secretary of Defense (Health Affairs)

The OASD(HA) provides MTF workload and outlay data and the distribution of military health care personnel by PE.

DATA FOR MTF COST CALCULATONS

The FYDP has 11 major programs, each broken down into PEs. Most of the PEs for health care provided by DoD are in Program Eight. There are medicaland dental activities and personnel in other programs, but they are supporting components of the military units within those programs. An example of a Program Eight health care activity is a hospital, such as Walter Reed Army Hospital. An example of a medical activity in another program is a medical battalion assigned to an infantry division.

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calculations is incomplete. We obtain the most recent *two* fiscal years for our calculations, updating the incomplete data for the latest year obtained during the previous year's calculations.

For example, we make the FY95 calculations during the summer of 1993. At that time, the CHAMPUS claims data for FY92 were still incomplete, since the claims window was still open. For the FY96 calculations, in addition to getting the data from FY93, the analyst should also get a new set of FY92 CHAMPUS claims data, which by that time will be complete.

Table A-3.
Data Elements of the CHAMPUS Data Base

Field name	Field contents	Possible entries	Data type	Field width
SSN	Sponsor SSN		Character	9
SEX	Claimant sex	M, F, Z[a]	Character	1
RELATION	Relationship to sponsor	1, 2, 3[b]	Character	1
YY	Claimant birth year	00 – 99	Character	2
MM	Claimant birth month	01 – 12	Character	2
DD	Claimant birth day	01 – 31	Character	2
COST	Total CHAMPUS claims this fiscal year		Numerical	8
Total record length				25

[a] M = male, F = female, and Z = unknown.

[b] 1 = self, 2 = spouse, and 3 = child (parents and other dependents are ineligible for CHAMPUS).

For the purposes of accrual accounting, we look only at the health care activities assigned to Program Eight. We assume that any medical or dental activities in other programs are necessary for those military units to perform their assigned missions. That is, the costs of non-Program Eight medical and dental activities are the military readiness costs, not health care costs.

The PEs for which OASD(HA) furnishes the outlays, by fiscal year and appropriation category (O&M, MilPers), are listed in Table A-4. OASD(HA) also furnished outlay data on additional health care costs, covering equipment procurement and facility construction, that do not have unique PEs.

The outlay data for the PEs contained in Table A-4 include the costs of all health care education and training of military personnel whether they are assigned to Program Eight or non-Program Eight health care activities. For accrual accounting calculations, the outlays contained in PEs 0806721, 0806722, 0806761, and 0806861 must be reduced by the proportion of all health care personnel in non-Program Eight health care activities. So that the analyst can make this calculation, OASD(HA) furnishes the number of military personnel assigned to Program Eight health care PEs and those assigned elsewhere.

The outlays must also be adjusted to account for the costs of MTF training exercises intended to maintain military readiness but which are not related to the delivery of health care. Therefore, OASD(HA) furnishes a percentage, obtained from the Medical Expense and Performance Reporting System (MEPRS), that we apply to the total outlays for the PEs in Table A-4. Typically, this percentage is between 1 percent and 2 percent.

Table A-4.
MTF Program Elements

Program element number	Program element title
0806721	Uniformed Services University of the Health Sciences
0806722	Armed Forces Health Professional Scholarship Program
0806761	Education & Training
0806861	Education & Training, Joint Military Medical Center
0807711	Care in Regional Defense Facilities
0807713	Care in Non-Defense Facilities
0807715	Dental Care
0807756	Environmental Compliance
0807776	Minor Construction — Health Care
0807778	Maintenance & Repair — Health Care
0807790	Visual Information Activities
0807791	Defense Medical Program Activity
0807792	Station Hospitals & Clinics
0807794	Real Property Maintenance
0807795	Base Communications — Medical
0807796	Base Operations — Medical

The MTF costs have three components: inpatient medical, outpatient medical, and dental. PE 0807715 covers the cost of dental care exclusively. The remaining PEs cover both medical components. OASD(HA) furnishes inpatient and outpatient workload data for MTFs, but the workload units for the two types of care are different and not equal to each other in cost. Therefore, as a first step to developing the costs of retired health care, the total MTF costs exclusive of dental care (PE 0807715) are allocated into the inpatient and outpatient components. So that this can be done, OASD(HA) also furnishes inpatient and outpatient total costs from MEPRS. We calculate the ratio between the MEPRS inpatient and outpatient costs and apply that ratio to the total costs obtained earlier. (The MEPRS expense totals cannot be used in place of the totals obtained from the previously mentioned sources because they cannot be traced back to the DoD Budget.)

Inpatient Workloads

The Directorate of Information Management, Information Processing Center, U.S. Army Garrison, Ft. Detrick, Md., maintains the Biometrics data bases for the OASD(HA). Biometrics inpatient data include workloads for each episode of inpatient care at an MTF, along with sponsor SSN and patient (beneficiary) demographic data. At the direction of OASD(HA), the Directorate of Information Management furnishes an extract of the Biometrics data base, which we have named MTFIN, for use in calculating inpatient workloads. The data elements of MTFIN, as furnished by Ft. Detrick, are shown in Table A-5.

Many of the fields in MTFIN are not currently used in the accrual accounting process. These include sponsor data, bed days, and admission and disposition dates. Sponsor data are extracted from the sponsor data base.

The patient (beneficiary) demographic data are used, however, since without more information individual records in the MTFIN data base cannot be related to individual beneficiaries in the beneficiary data base. This posed some limitation, since the patient beneficiary category breaks the relationship to sponsor into only "sponsor" and "dependent." Specifically, the patient beneficiary category codes are three-character alphanumerics. The first character is a letter corresponding to the service, which is not used by accrual accounting at this time, since figures are not calculated by Service. The second and third characters describe the patient's relationship to the sponsor and the sponsor's status. For accrual accounting purposes, the codes of interest here are 30 — retired sponsor and 60 — dependent of retired/deceased.

The unit of inpatient workload is the relative weighted product (RWP, sometimes inpatient relative weighted product or IRWP). The RWP is a figure based on the diagnosis related group (DRG), which is unique to the diagnosis and procedure performed. There are two RWP components. The base RWP is a standard value for the DRG. It is the same for all episodes of care defined by that DRG when the length of stay falls within certain upper and lower bounds. For episodes falling below the lower limit, a base RWP value is calculated based on the actual length of stay. For those episodes falling beyond the upper bound, an additional outlier RWP is calculated. For accrual accounting calculations, the two RWP values are added together.

Outpatient Workloads

The Biometrics data base does not track individual episodes of MTF outpatient care. The outpatient workload measurement unit is the ambulatory work unit (AWU). The AWU is based on outpatient visits, weighted by clinical area visited. The weighting is applied to correct for different average costs per visit among the clinical areas.

Table A-5.
MTFIN Data Base Data Elements

Field name	Field contents	Possible entries	Field width
SSN	Sponsor SSN		9
SEX	Beneficiary sex	M, F	1
DOBYY	Patient birth year	00 – 99	2
DOBMM	Patient birth month	01 – 12	2
DOBDD	Patient birth day	01 – 31	2
BENCAT	Patient beneficiary category	(see paragraphs above)	3
PAY	Sponsor pay grade	E1 – 9, O1 – 9	2
DRG	Diagnosis Related Group	000 – 999	3
BEDDAYS	Bed days		4
ADMYY	Admission year		2
ADMMM	Admission month		2
ADMDD	Admission day		2
DISYY	Disposition year		2
DISMM	Disposition month		2
DISDD	disposition day		2
RWPBASE	base relative weighted products	000.0000 – 999.9999	8
RWPOUT	outlier relative weighted products	000.0000 – 999.9999	8
Total record length			56

Note: All fields contain character data.

The summary-level data provided to OASD(HA) are very coarse. Beneficiaries are only categorized as Active Duty personnel, dependents of Active Duty personnel, and others. This latter category includes those eligible for retired health care, plus groups such as the Uniformed Public Health Service, Coast Guard, and foreign military personnel in the United States.

A further complication is that only the Navy reports patient visits by beneficiary category and clinical area together. The Army and Air Force report beneficiary category and clinical area separately. Therefore, OASD(HA) applies the usage patterns experienced by the Navy to the Army and Air Force data.

Dental Workloads

In previous years, we obtained composite DoD dental workloads through OASD(HA), reported as percentages of total DoD dental outlays. This year these

composite data were unavailable for FY92. As a result, we obtained data directly from the Military Services. In this case, we had to obtain both Service workload percentages and service outlay data. From these we then computed Service outlays by beneficiary category.

Like outpatient medical workload data, dental workloads are reported at the summary level only. The beneficiary categories are Active Duty personnel, dependents of Active Duty personnel, retired Military Service members, and others. The "others" category includes, but is not limited to, dependents of retired personnel.

Office of the Civilian Health and Medical Program of the Uniformed Services

The OCHAMPUS furnishes contractor and in-house administrative overhead costs in order to fully burden CHAMPUS claims. The cost categories furnished by OCHAMPUS for FY92 are listed below.

◆ Benefit payments

◆ CHE/CAP

◆ CHAMPUS reform initiative

◆ Europe benefits

◆ Tidewater contract

◆ CPA, Inc./Managed Care, Inc.

◆ Fiscal intermediary

◆ OCHAMPUS direct budget (in-house administrative overhead)

◆ Carryover from previous year

◆ Carryover to next year.

The fiscal intermediary costs are the costs for the contractors who process CHAMPUS claims but do not include the claims costs, which are in benefit payments. To allow for budget shortfalls, costs are sometimes carried over into the following fiscal year. To calculate the correct total costs for any given year, the carryover from the previous year must be subtracted and the carryover to the following year must be added, hence the last two categories.

The costs furnished by OCHAMPUS are paid outlays during the fiscal year. Thus, these benefit payment data are the sum of paid claims and cannot be compared easily to the incurred claims contained in the CHAMPUS data base.

Points of Contact

Table A-6 lists points of contact for accrual accounting data collection.

Table A-6.
Data Collection Points of Contact

Name	Activity	Data elements	Commercial telephone number
Col Paul Kearns	Health Budgets & Pgms, OASD(HA)		(703) 614-3242
COL Stu Baker	Health Budgets & Pgms, OASD(HA)	MTF outpatient workloads	(703) 756-1918
Mr. David Bowling	Information Mgt., USAG, Ft. Detrick, MD	MTF inpatient workloads	(301) 619-7291
Ms. Kim Frazier, MAJCalvin Williams	Health Budgets & Pgms, OASD(HA)	MTF outlays, personnel, readiness costs	(703) 756-7888
LCdr Stan Fish	OCHAMPUS, Washington	OCHAMPUS contract and overhead costs	(703) 697-8977
Mr. Ron Hudson	OCHAMPUS, Boulder, CO		(303) 361-4664
Ms. Myra Golphenee	DMDC, Monterey, CA	Beneficiary, sponsor data bases	(408) 655-0400
Ms. Sue Butler	DMDC, Monterey, CA	CHAMPUS data base	(408) 655-0400
Mr. Mike Dove	DMDC, Monterey, CA		(408) 655-0400
COL R. A. Augsberger	Prof'l Affairs & Quality Assurance, OASD(HA)	MTF dental workloads	(703) 695-6800

Note: USAG = U.S. Army Garrison.

DATA PROCESSING

The data processing effort involves developing summary data bases from the data discussed in the preceding section and processing the data bases into spreadsheets for use by the actuaries. The spreadsheets consist of the individual counts and claims costs by sponsor age (years since birth for deceased), beneficiary sex, relationship to sponsor, sponsor Component, and sponsor pay grade. Additionally, summary sheets furnish summary totals for each category. The

data processing is done on IBM-compatible desktop computers and peripherals under the Microsoft DOS operating system.

The following conventions apply to this section:

◆ Drive\path\filenames within text are given in capitalized italics of a different font: *C:\DATA\CL\CL.DBF*

◆ Commands, including embedded drive\path\filenames, appear in a different font:

   USE C:\DATA\SP\RSP*yy* INDEX C:\DATA\SP\RSP*yy*SSN IN A:

◆ The *yy* in a command indicates keystrokes that vary according to the context of the command. (In the preceding example, *yy* indicates the user should substitute the two-digit fiscal year — 92, 88, etc.) These will be lower-case italics.

◆ Data base filenames where *yy* is the fiscal year are as follows:

   ► Sponsor data bases are named *SPyy.DBF*. They are found in the *C:\DATA\SP* subdirectory.

   ► Beneficiary data bases are named *BFyy.DBF*. They are found in the *C:\DATA\BF* subdirectory.

   ► CHAMPUS data bases are named *CLyy.DBF*. They are found in the *C:\DATA\CL* subdirectory.

   ► Data bases containing records of retired or deceased sponsors only are preceded with *R*; those containing all sponsors do not have the leading *R*. For example, *BF92.DBF* contains all beneficiary records from FY92, while *RBF92.DBF* contains FY92 records only for beneficiaries with retired or deceased sponsors.

◆ Commands are shown as they should be typed, with the exception of plain language descriptions contained within curly brackets: {}. Include all spaces. Do not enter the brackets. Commands are separated by a blank line. Single continuous commands taking up more space than allowed on one line do not have intervening blank lines. Spaces at the end of the first line of the multiline continuous commands are shown by {space}.

The following subsections discuss the stages of the data processing effort in sequence. The first subsection details the procedures for processing the raw data bases received from DMDC and the Directorate of Information Management, Ft. Detrick, into summary data bases with claims and eligible beneficiary count vec-tors. The second subsection presents the procedures for processing the summary data bases into summary spreadsheets.

Data Base Development

Raw data are processed into data bases containing data in four areas: sponsor demographic information, beneficiary demographic information, CHAMPUS claims, and MTF workloads. The raw data take the form of data bases with records for individuals. For example, the raw beneficiaray data base has a record for each individual who is eligible for care in the MHSS. Each record contains data such as date of birth, sex, relationship to sponsor, etc. The raw sponsor data base contains information such as sponsor Component, sponsor status (retired, deceased), sponsor date of birth, etc. The raw CHAMPUS data base contains CHAMPUS claims totals the year in dollars and cents for each individual who submitted a claim. There is one record per claimant. The raw MTF workload data base is slightly different. It contains a record for each episode of MTF inpatient care. Thus, there are multiple records for those individuals who received more than one episode of inpatient care.

The objective of this phase of the data processing effort is to count beneficiaries and sum claims and workloads into summary data bases that contain the data of interest to the actuary.

SPONSOR, BENEFICIARY, AND CHAMPUS DATA BASES

Raw data bases containing sponsor demographic information, beneficiary demographic information, and CHAMPUS claims are furnished by DMDC on IBM-3480 compatible, 1/2-inch tape cartridges in EBCDIC format using software furnished with the tape reader. These files are read onto a desktop computer hard disc, converting them to the ASCII format without delimiters. From the ASCII files, they are then appended to empty dBASE files that have the appropriate file structure.

We discuss the three DMDC data bases — sponsor, beneficiary, and CHAMPUS — together, since the processing requires that a relationship be established between the sponsor data base and the other two in order to extract sponsor data for individual beneficiaries/claimants.

We use FoxBase Pro 2.0 for our data base management system. The data processing steps follow. We describe each step, giving appropriate software names, followed by the actual commands.

1. Copy original tapes to hard disc, converting from EBCDIC to ASCII using the *TRANSFER* software found in the *C:\DATAPROC\LAGUNA* directory.

    TRANSFER /CF=C:\DATAPROC\LAGUNA\CFG\zzyy.CFG

    Where *zzyy.CFG* is the configuration file unique to fiscal year *yy* and *zz* is *BF, SP,* or *CL.*

2. Convert ASCII files to *zzyy.DBF* files on hard disc. *ADDASCII* is found in the *C:\DATAPROC\UTIL* subdirectory. The structure file is an empty *.DBF* file containing the structure of the output *.DBF* file. The structure file is named the first two letters of the output file (i.e., *SP.DBF*) and is located in the *C:\DATA\DBF* subdirectory. Do not type the {} brackets in the following commands.

   CD \DATAPROC\UTIL
   ADDASCII C:\DATA\DBF\zz.DBF {ASCII filename with path}
   {space}**C:\DATA\zz\zzyy.DBF R**{record length}

3. Confirm the integrity of the *.DBF* file, back up the ASCII file to tape (if desired), and delete the ASCII file on the hard disc.

4. Back up the *zzyy.DBF* file to 3480 tape cartridge

   CD\BK4LAN

   BK4LAN

   Configure menu: Select *Tape*

   Tape menu: Select *STK4280*

   Backup menu: Select *Backup Manager*

   Backup Manager menu: Select *CHAMPUS*

   Edit as necessary to specify files and locations to back up

   F2 (Backup)

5. Create *.DBF* files containing only records associated with retired or deceased (R/D) sponsors.

   a) Copy R/D sponsors from *C:\DATA\SP\SPyy.DBF* to *C:\DATA\SP\RSPyy.DBF*.

   (i) Create a data base named *STATUSyy.DBF* of the unique entries in the STATUS field of *SPyy.DBF*. Place *STATUSyy.DBF* in the *C:\DATA\SP* subdirectory. *CODESUMS* is found in the *C:\DATAPROC\UTIL* subdirectory. Note that the ".*DBF*" extension is not required in this command.

   CODESUMS SPyy STATUS STATUSyy

   (ii) Mark for deletion from within FoxPro those records in *STATUSyy.DBF* that do not contain "R" or "D" in the STATUS field, then

   PACK STATUSyy.DBF

(iii)   Create a new data base of retirees and deceased sponsors called *C:\DATA\SP\RSPyy.DBF*. *MATCH* is found in the *C:\DATAPROC\UTIL* sub-directory. Note that the *".DBF"* extension is not required in this command

CD \DATAPROC\UTIL

MATCH C:\DATA\SP\SPyy C:\DATA\SP\STATUSyy STATUS=STATUS {space} C:\DATA\SP\RSPyy.DBF

b)   Delete *SPyy.DBF* (backup already on 3480 cartridge)

c)   Index *RSPyy.DBF* on the SSN field from within FoxPro.

USE RSPyy

INDEX ON SSN TO RSPyySSN

d)   Use *SPDUPES.PRG* in FoxPro to locate and correct/eliminate sponsor records with duplicate SSNs:

DO C:\DATA\PRG\SPDUPES

e)   Set up relation between *RSPyy.DBF* and *BFyy.DBF*

USE C:\DATA\SP\RSPyy INDEX C:\DATA\SP\RSPyySSN IN A

USE C:\DATA\BF\BFyy IN B

SELE B

SET RELATION TO SSN INTO RSPyy

f)   Copy beneficiaries from *BFyy.DBF* to *RBFyy.DBF*

COPY TO C:\DATA\BF\RBFyy FOR RSPyy->SSN = BFyy->SSN

g)   Delete *BFyy.DBF* (backup file already on 3480 tape cartridge)

h)   Copy claims from *CLyy.DBF* to *RCLyy.DBF*

COPY TO C:\DATA\CL\RCLyy FOR RSPyy->SSN = CLyy->SSN

i)   Delete *CLyy.DBF* (backup file already on 3480 tape cartridge).

6.   Back up *RSPyy/RBFyy/RCLyy.DBF*s and *RSPyySSN.IDX* to 3480 tape cartridge.

7. Remove NAME and insert DOB, BF_AGE, SP_AGE, COMP, PAY GRADE, and STATUS fields in *RBFyy.DBF*. Note: Age fields are width = 3 and numeric. COMP, PAY GRADE, and STATUS fields are width = 1 and character.

8. Insert DOB, BF_AGE, SP_AGE, COMP, PAY GRADE, and STATUS fields in *RCLyy.DBF*. Same field widths and characteristics as note above.

9. Use all Rzzyy.DBFs and associated indexes. This prevents an extraneous error message during later processing.

10. Fill DOB fields in *RBF/RSP/RCLyy.DBFs*. Apostrophes are required.

    DO C:\DATA\PRG\DATE WITH 'yy'

11. Fill BF_AGE fields in *RBFyy.DBF* and *RCLyy.DBF* and SP_AGE field in *RSPyy.DBF*. Apostrophes are required.

    DO C:\DATA\PRG\AGE WITH 'yy'

12. Fill COMP, SP_AGE, PAY GRADE, and STATUS fields in *RBFyy.DBF*.

    USE C:\DATA\SP\RSPyy INDEX C:\DATA\SP\RSPyySSN IN A

    USE C:\DATA\BF\BFyy IN B

    SELE B

    SET RELATION TO SSN INTO RSPyy

    REPLACE ALL COMP WITH RSPyy->COMP, SP_AGE WITH{space} RSPyy->SP_AGE, STATUS WITH RSPyy->STATUS, PAY GRADE{space} WITH RSPyy->PAY GRADE

13. Backup modified *RBF/RCL/RSPyy.DBFs* and *RSPyySSN.IDX* to 3480 tape cartridge as *MRBF/MRCL/MRSPyy.DBFs*, respectively. "*M*" indicates modified with additional fields.

14. Parse *RBFyy.DBF* by sex, relation, status, and component into *BFyyxrcs.DBFs* where x = sex, r = relation, c = Component, and s = status. Apostrophes are required.

    DO C:\DATA\PRG\PARSE WITH 'RBFyy'

15. Parse *RCLyy.DBF* by sex, relation, status, and component into *CLyyxrcs.DBFs* where x = sex, r = relation, c = Component, and s = status. Apostrophes are required.

A-15

```
DO C:\DATA\PRG\PARSE WITH 'RCLyy'
```

16. Count beneficiaries by relationship to sponsor, sponsor age (or years since birth for deceased sponsors), status, Component, and pay grade within each *BFyyxrcs.DBF*.

    a)   For all beneficiaries eligible for MTF care. Results are placed in *MCNTyyp.DBFs* (where *p* = pay grade) located in the *C:\DATA\RESULTS\RESULTyy\DBF* subdirectory. Apostrophes are required.

    ```
    DO C:\DATA\PRG\MTFBENE3 WITH 'yy'
    ```

    b)   For beneficiaries eligible for both CHAMPUS and MTF care. Results are placed in *CCNTyyp.DBFs* (where *p* = pay grade) located in the *C:\DATA\RESULTS\RESULTyy\DBF* subdirectory. Apostrophes are required.

    ```
    DO C:\DATA\PRG\CHABENE3 WITH 'yy'
    ```

17. Sum CHAMPUS claims by relationship to sponsor, sponsor age (or years since birth for deceased sponsors), status, Component, and pay grade within each *CLyyxrcs.DBF*. Results are placed in *CCLAMyyp.DBFs* (where *p* = pay grade) located in the *C:\DATA\RESULTS\RESULTyy\DBF* subdirectory. Apostrophes are required.

    ```
    DO C:\DATA\PRG\CHACLAM3 WITH 'yy'
    ```

18. Sum sponsor in *RSPyy.DBF* by sponsor age (years since birth for deceased sponsors), Component, and pay grade to *SPCNTyy.DBF* in the *C:\DATA\RESULTS\RESULTyy\DBF* subdirectory. Apostrophes are required.

    ```
    DO SPCOUNT WITH 'yy'
    ```

19. Back up *BFyyxrcs.DBFs* and *CLyyxrcs.DBFs* to 3480 tape cartridge.

Note: use of *MASTER.PRG* will accomplish steps #10 through #12, #14 through #17, and #19.

MTF INPATIENT WORKLOAD DATA BASE

    Ft. Detrick provides a data base of MTF inpatient workloads by episodes of care on IBM-3480 compatible 1/2-inch tape cartridge in ASCII format. The data are processed in a sequence similar to that used for the CHAMPUS data base. In this case, the output data base contains RWPs for each episode of care, plus

beneficiary and sponsor information. The steps in the data processing are listed below.

1. Copy the original tape to hard disc, converting to ASCII. *MTFINyy.CFG* is the configuration file unique to year *yy*.

   ```
   CD \DATAPROC\LAGUNA

   TRANSFER /CF=C:\DATAPROC\LAGUNA\CFG\MTFINyy.CFG
   ```

2. Convert the ASCII file to *MTFINyy.DBF* located in the *C:\DATA\MTF* sub directory on the hard disc. The *MTFIN.DBF* structure file is in the *C:\DATA\DBF* subdirectory.

   ```
   CD \DATAPROC\UTIL

   ADDASCII C:\DATA\DBF\MTFIN.DBF {ASCII filename with path}
   {space}C:\DATA\MTF\MTFINyy.DBF /R56
   ```

3. Delete ASCII file and back up *MTFINyy.DBF* to 3480 tape cartridge.

4. Copy records for patients with retired or deceased sponsors to *RMTFyy.DBF* in the *C:\DATA\MTF* subdirectory. Use *MTF.PRG* from within FoxPro. Apostrophes are required.

   ```
   DO C:\DATA\PRG\MTF WITH 'yy'
   ```

5. Delete *MTFINyy.DBF* (already backed up).

6. Build a data base named *RMIyy.DBF* in the *C:\DATA\MTF* subdirectory with RWP and patient data from *RMTFINyy.DBF* and sponsor data (SP_AGE, STATUS, COMP, PAY GRADE) from *RSPyy.DBF*. Calculate BF_AGE. Use *MTFIN.PRG* from within FoxPro.

   ```
   DO C:\DATA\PRG\MTFIN WITH 'yy'
   ```

7. Parse *RMIyy.DBF* by sex, relation, status, and Component into *Mlyyxrcs.DBFs* where x = sex, r = relation, c = Component, and s = status. Apostrophes are required.

   ```
   DO C:\DATA\PRG\PARSE WITH 'RMIyy'
   ```

8. Sum MTF inpatient workloads by patient relationship to sponsor, sponsor age (or years since birth for deceased sponsors), status, Component, and pay grade within each *Mlyyxrcs.DBF*. Results are placed in *MSUMyyp.DBFs* (where p = pay grade) located in the *C:\DATA\RESULTS\RESULTyy\DBF* subdirectory. Apostrophes are required.
   ```
   DO C:\DATA\PRG\MTFSUMSP WITH 'yy'
   ```

9. Back up *Mlyyxrcs.DBFs* to 3480 tape cartridge.

Spreadsheet Development

After the summary data bases are developed as described in the preceding sections, they are converted to spreadsheets. These data spreadsheets are nothing more than the data bases in spreadsheet files and are relatively difficult for an actuary to use. The data spreadsheets are therefore imported into summary spreadsheets that display the summaries more clearly and also further summarize the data. The process described below uses the *Lotus 1-2-3* Version 3.1 spreadsheet package.

The MTF beneficiary count spreadsheets are contained in the *C:\DATA\RESULTS\RESULTyy\WKS\MCNT* subdirectory.

The CHAMPUS beneficiary count spreadsheets are contained in the *C:\DATA\RESULTS\RESULTyy\WKS\CCNT* subdirectory.

The CHAMPUS claims spreadsheets are contained in the *C:\DATA\RESULTS\RESULTyy\WKS\CCLAM* subdirectory.

The MTF in patient workload/cost spreadsheets are contained in the *C:\DATA\RESULTS\RESULTyy\WKS\MSUM* subdirectory.

The sponsor count spreadsheets are contained in the *C:\DATA\RESULTS\RESULTyy\WKS\SPCNT* subdirectory.

This phase also develops additional spreadsheets to display CHAMPUS contractor and overhead costs and MTF costs.

SUMMARY SPREADSHEETS

Since Lotus will not directly import FoxPro data bases, each data base is first converted to a dBASEII data base from within the dBASEIV data base management system:

SET DIRECTORY TO C:\DATA\RESULTS\RESULT*yy*\DBF

USE {FoxPro data base filename}

COPY TO C:\DATA\RESULTS\RESULT*yy*\DBF\DB2\{FoxPro data base filename} **TYPE DBASEII**

This results in a dBASEII format data base in the *C:\DATA\RESULTS\RESULTyy\DBF\DB2* subdirectory. To avoid confusion, dBASE IV automatically changes the extension of the dBASEII file to *.DB2*. This is why the dBASEII file is placed in a separate subdirectory. Since Lotus insists

on a .DBF extension, the dBASEII format file in the C:\DATA\RESULTS\RESULTyy\DBF\DB2 subdirectory must be renamed from DOS:

CD \DATA\RESULTS\RESULTyy\DBF\DB2

REN {filename}.**DB2** {filename}.**DBF**

The reader should note that there now are two data base files for each file with the same filename and extension. The file in C:\DATA\RESULTS\RESULTyy\DBF is in FoxPro format, the file in C:\DATA\RESULTS\RESULTyy\DBF\DB2 is in dBASE II format. The dBASEII file is then translated into a Lotus spreadsheet. This is done from within the Lotus *Translate* utility. The new data spreadsheet is given the same filename (with a .WK3 extension) as the data base and is placed in the appropriate subdirectory of the C:\DATA\RESULTS\RESULTyy\WKS directory. The data spreadsheet's first row consists of the field names from the data base. Column widths correspond to the data base field widths. Data spreadsheets are next imported into the summary spreadsheet located in the same subdirectory. The summary spreadsheets are provided to the actuaries. They are named according to the following:

MTF beneficiary counts	MELIGyyp.WK3
CHAMPUS beneficiary counts	CELIGyyp.WK3
CHAMPUS claims	CLAIMyyp.WK3
MTF inpatient workloads / costs	MCOSTyyp.WK3

There is no summary spreadsheet for sponsor counts.

Each summary spreadsheet file has individual worksheets with the counts, claims, or costs, as appropriate, for beneficiaries of a particular Component and status. Since there are three possible values for Component (A, R, U) and two possible values for status (D, R) there are six worksheets, plus a summary worksheet, in each file. Each worksheet has rows corresponding to sponsor age (years since birth for deceased sponsors) at nearest birthday to 1 October 19yy from 0 to 199. There is a row for unknown ages, which are coded 999, so each worksheet has 200 rows of data, plus column headings and totals.

The worksheet columns correspond to beneficiary/patient/claimant sex and relationship to sponsor. Only retirees, spouses of retirees (living or deceased), and children of retirees (living or deceased) are eligible for CHAMPUS. Therefore, there are three values for relationship (1, 2, 3) and three values for sex (F, M, Z). Thus, the worksheets in CELIGyyp.WK3 and CLAIMyyp.WK3 have nine data columns, plus row headings (ages) and row totals.

In addition to the those eligible for CHAMPUS, parents and other dependents are eligible for MTF care. Thus there are 15 data columns in the MELIGyyp.WK3 worksheets. The MTF inpatient costs have only two relationships (sponsor, dependent) and thus have only six data columns.

Master summary spreadsheets with no data are located in the *C:\DATA\WKS* subdirectory. Formulas for the row and column totals and the summary worksheet are already in place. These master spreadsheets are named according to the same conventions given above, without the *yy* and *p*. The appropriate master spreadsheet is copied to the corresponding subdirectory with the name of the summary spreadsheet. The new summary spreadsheet is then opened from Lotus and the appropriate header (e.g., "FY92 Enlisted MTF Beneficiary Counts") is inserted in cell A:A1 of the summary worksheet. Ranges of data from the data spreadsheet are then imported into the new summary spreadsheet, using the **/FILE COMBINE ADD** command. These ranges are rows corresponding to the appropriate combinations of age, Component, and status for each worksheet.

OTHER SPREADSHEETS

Data for the other spreadsheets are entered manually. These spreadsheets are used to display the CHAMPUS contractor and overhead costs and to develop the MTF costs. The CHAMPUS contractor and overhead costs are manually entered into the *CHAM_OHD.WK3* spreadsheet. No further processing of these data is done.

The MTF construction and equipment outlays are entered into *MCON_OP.WK3*. Because of wide swings in annual outlays in these appropriation categories, accrual accounting uses a 10-year running average for these costs. The annual outlays obtained from OASD(HA) are entered into the spreadsheet, along with the appropriate DoD total obligational authority deflators from the latest *National Defense Budget Estimates* published by the Office of the Comptroller of the Department of Defense. The spreadsheet then reduces the outlays to constant-year dollars, computes the averages, and then converts the running averages for each year back to then-year dollars.

The MTF actual outlays for each Program Eight PE and health care end strengths (military personnel totals) for all military health care activities (Program Eight and non-Program Eight) are entered into the appropriate cells in the first two worksheets of *PE.WK3*. The appropriate reductions are then made to training and education PEs. The accrual accounting costs by PE are displayed on the last worksheet.

The construction and equipment procurement running averages and accrual accounting costs by PE are imported into worksheet *E* of *MTF.WK3* using the **/FILE COMBINE ADD** command. Additionally, the readiness percentage applied to MilPers and O&M outlays is entered manually.[3] This worksheet sums these total MTF medical (inpatient plus outpatient) and dental costs and feeds them to worksheet *D*. Worksheet *D* is also where the MEPRS inpatient and outpatient costs are entered manually. The MEPRS data proportions are applied to

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[3] These data may be furnished either as a percentage or with the MEPRS costs that are entered in the cell to compute the percentage.

the cost data to split the MTF total medical costs into inpatient and outpatient subtotals.

Population data from the *MELIGyyp.WK3* summary spreadsheets are entered into worksheet *C*. This worksheet calculates the appropriate breakdowns of the MTF outpatient and dental "other" workload categories.

Worksheet *B* calculates the average cost per MTF workload unit.[4] It takes the outpatient cost subtotals from worksheet *D* and the AWU totals manually entered to calculate a cost per AWU.

Worksheet *B* also takes the MTF inpatient cost subtotal and the total RWPs from *MSUMyyp.WK3*s to calculate an average cost per RWP. The analyst then applies this average cost back to *MSUMyyp.WK3*s to calculate the cost vectors. This is done by creating a second worksheet in each *MSUMyyp.WK3* that has the same rows and columns as the original data worksheet translation of the summary data base. The cells of the new cost worksheet are the product of the average cost per RWP and the MTF inpatient workload in the corresponding cell in the original worksheet.

Worksheet *A* takes the average costs per AWU and population breakdowns of the "other" category to calculate an average cost per eligible person for outpatient care. It also takes the dental costs, workload percentages, and population breakdowns to calculate a similar average cost for dental care.

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[4]The workload unit for inpatient care is the relative weighted product (RWP). The unit for outpatient care is the ambulatory work unit (AWU).

APPENDIX B

Report of Milliman & Robertson, Inc.

The report of Milliman & Robertson, Inc., documents the actuarial calculations underlying our accrual accounting estimates. The report is published separately.

REPORT DOCUMENTATION PAGE

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13. ABSTRACT (Maximum 200 words)

This report provides estimates of the value of the retirement health care benefits earned by current DoD military personnel for service in FY95, expressed in dollars (the normal cost) and as a percentage of base pay (the normal cost percentage), and of the future benefits earned by current military personnel and current retirees with service before 1 October 1994. Recommendations for further process improvement are included. Appendices detail actuarial calculations and data processing methodology.

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